

Analysis Report

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ANALYTICAL RESULTS

Prepared by:

Lancaster Laboratories
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Lancaster, PA 17605-2425

Prepared for:

Olin Corporation
Suite 200
3855 North Ocoee Street
Cleveland TN 37312

June 29, 2012

Project: Olin Wilmington, MA / 6107120016

Submittal Date: 06/19/2012

Group Number: 1317239

SDG: OLN78

PO Number: REWI0012

Release Number: ERRE9813

State of Sample Origin: MA

Client Sample Description

OC-SD-EDSD/SW7-XXX Grab Sediment

Lancaster Labs (LLI) #

6695248

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO
AMEC

Attn: Kelly Chatterton

ELECTRONIC COPY TO
AMEC

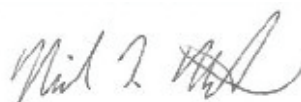
Attn: Chris Ricardi

ELECTRONIC COPY TO
Olin Chemicals

Attn: James Cashwell

ELECTRONIC COPY TO
Data Package Group

Respectfully Submitted,



Nicole L. Maljovec
Senior Specialist Group Leader

(717) 556-7259

Sample Description: OC-SD-EDSD/SW7-XXX Grab Sediment
Wilmington MA Superfund Site

LLI Sample # SW 6695248
LLI Group # 1317239
Account # 12670

Project Name: Olin Wilmington, MA / 6107120016

Collected: 06/18/2012 11:25

Olin Corporation

Submitted: 06/19/2012 09:30

Suite 200

Reported: 06/29/2012 13:38

3855 North Ocoee Street

Cleveland TN 37312

SDDED7 SDG#: OLN78-01*

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
Misc. Organics		SW-846 8315A modified	ng/g	ng/g	ng/g	
10346	1,1-Dimethylhydrazine	57-14-7	N.D.	5.9	2.4	1
10346	Hydrazine	302-01-2	1.4 J	2.4	0.59	1
10346	Methylhydrazine	60-34-4	N.D.	5.9	2.4	1
Wet Chemistry		SM20 2540 G	%	%	%	
00111	Moisture	n.a.	15.8	0.50	0.50	1
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.						

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10346	Hydrazines in Soil	SW-846 8315A modified	1	12173001	06/27/2012 02:35	Meng Yu	1
00111	Moisture	SM20 2540 G	1	12177820002A	06/25/2012 11:54	William C Schwebel	1

Quality Control Summary

Client Name: Olin Corporation
Reported: 06/29/12 at 01:38 PM

Group Number: 1317239

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank LOQ**</u>	<u>Blank MDL</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: 12173001	Sample number(s): 6695248								
1,1-Dimethylhydrazine	N.D.	5.0	2.0	ng/g	104	106	68-129	2	30
Hydrazine	N.D.	2.0	0.50	ng/g	103	107	62-122	4	30
Methylhydrazine	N.D.	5.0	2.0	ng/g	103	100	57-125	3	30
Batch number: 12177820002A	Sample number(s): 6695248								
Moisture					100		99-101		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Background (BKG) = the sample used in conjunction with the duplicate

<u>Analysis Name</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>MS/MSD Limits</u>	<u>RPD</u>	<u>RPD MAX</u>	<u>BKG Conc</u>	<u>DUP Conc</u>	<u>DUP RPD</u>	<u>Dup RPD Max</u>
Batch number: 12173001	Sample number(s): 6695248 UNSPK: 6695248								
1,1-Dimethylhydrazine	14	16	10-116	13	30				
Hydrazine	71	70	11-102	1	30				
Methylhydrazine	6*	6*	10-92	7	30				
Batch number: 12177820002A	Sample number(s): 6695248 BKG: P697827								
Moisture						12.1	11.7	3	13

*- Outside of specification

** This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

126701 1317239 6695248 6693008 07 ③ Lancaster - Sediment
 1 of 1

temp 3.1°C

Client: Olin Corporation		Client Project #: 6107120016		INVOICE INFO	
Address: 3855 North Ocoee St. Suite 200		Work Site ID: Wilmington, MA		Company Name: Olin Corp	
Cleveland, TN 37312		Reports Sent To: James Cashwell		Company Contact: ERG Accounts Payable	
Phone: 423-336-4511	Fax: 423-336-1486	Email:	Email Rpt:	Address: Same as Client	
Requested Turnaround Time (SPECIFY)		Regulatory Programs: MADEP MCP Superfund		Phone:	
Standard <input checked="" type="checkbox"/>	Rush	Report Requirements: Level IV Package Level II Package		Email:	
(Lab Approval Required)		EDD Requirements: MACTEC EQUIS EZ EDD			

Sample ID	Date/Time Collected	Fraction (1)	QC Code (2)	Sample Matrix (3)	Composite (C) or Grab (G)	Total # of Containers											←Preservative Type (4)		←Bottle Type (5)		Comments (Special Instructions)
OC-SD-EDSO/SW7	6/18/12 1125		FS SD	G	1																

Special Instructions For Lab

Notes:

- 1.) Fraction: T = Total, D = Dissolved, S = SPLP, C = TCLP, N = Not Applicable
- 2.) QC Codes: FS = Field Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike, MSD = Matrix Spike Duplicate, PE = Performance Evaluation Sample, FB = Field Blank
- 3.) Sample Matrix: GW = Groundwater, SW = Surface Water, DW = Drinking Water SO = Soil, SD = Sediment, BW = Blank Water, NAL = Non-Aqueous Liquid, PR = Product, O = Oil
- 4.) Preservation Type: HA = Hydrochloric Acid, NI = Nitric Acid, SA = Sulfuric Acid, SH = Sodium Hydroxide, Zn = Zinc Acetate, ME = Methanol, DI = DI Water
- 5.) Bottle Type: G = Glass, P = Plastic, V = 40mL VOA Glass Vial, AG = Amber Glass, AV = 40mL VOA Amber Glass Vial,

Cr+6 = 24 hour hold time

Formaldehyde = 3 day hold time

Relinquished: Ch M Date: 6/18/12 Time: 1530 Received: Fed Ex Date: 6/18/12 Tim 1530
 Relinquished: Date: / / Time: Received: Date: 6/19/12 Tim 930

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm	ng	nanogram(s)
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
µg	microgram(s)	mg	milligram(s)
mL	milliliter(s)	L	liter(s)
m³	cubic meter(s)	µL	microliter(s)
		pg/L	picogram/liter
<	less than - The number following the sign is the <u>limit of quantitation</u> , the smallest amount of analyte which can be reliably determined using this specific test.		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is \geq the Method Detection Limit (MDL) and $<$ the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers		Inorganic Qualifiers	
A	TIC is a possible aldol-condensation product	B	Value is $<$ CRDL, but \geq IDL
B	Analyte was also detected in the blank	E	Estimated due to interference
C	Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	N	Spike sample not within control limits
E	Concentration exceeds the calibration range of the instrument	S	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
P	Concentration difference between primary and confirmation columns $>25\%$	W	Post digestion spike out of control limits
U	Compound was not detected	*	Duplicate analysis not within control limits
X,Y,Z	Defined in case narrative	+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as "analyze immediately" are not performed within 15 minutes.

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